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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/715,426	11/16/2000	Thomas M. Brennan	05871.0002.CNUS05	7723

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EXAMINER

FREDMAN, JEFFREY NORMAN

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/715,426

Applicant(s)

BRENNAN, THOMAS M.

Examiner

Jeffrey Fredman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 18-27 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Applicant has provided evidence for priority to 07/745,614. Therefore, Fodor is a 102(a) type rejection.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 18-21 and 23-26 are rejected under 35 U.S.C. 102(a) as being anticipated by Fodor et al (Science (15 February 1991) 251:767-773).

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Fodor teaches a solid support comprising a support surface (see abstract), specifically glass (see page 767, column 2, subheading "spatially localized deprotection"),

where the solid support has an array of functionalized sites (see page 767, column 2, subheading "spatially localized deprotection" and page 768, figures 1 and 2), and where a solution at a functionalized site is inherently separated from solutions at other functionalized sites by surface tension (see page 768, figures 1 and 2), in particular, using NVOC, nitroveratryloxylcarbonyl (see page 767, column 2). This solution will inherently yield some level of surface tension between the spots, even if the amount is not as large as that of a more lipophilic mask, thereby inherently meeting the claimed limitations and the surface tension will be necessarily be greater relative to the support surface itself.

Fodor teaches a support which has 100 um by 100 um elements to yield 400 um diameter elements (see page 767, column 2) with more than 10 elements per square centimeter (see page 768, figure 2).

Fodor teaches that the functionalized region may bind either proteins or nucleic acids (see page 771, figures 7 and 8) via a covalent interaction.

4. Claims 18-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Pirrung et al (U.S. Patent 5,143,854).

Pirrung teaches a solid support comprising a support surface (see abstract), specifically glass or modified silicon or polytetrafluoroethylene (Teflon) or polystyrene or polycarbonate (see column 11, lines 14-40) ,

where the solid support has an array of functionalized sites (see figure 4, abstract and column 3, lines 5-60),

and where a solution at a functionalized site is inherently separated from solutions at other functionalized sites by surface tension (see figure 4), in particular, using NVOC, nitroveratryloxycarbonyl (see column 12, lines 13-68) as well as the express teaching that the linkers may be hydrophobic (see column 12, line 15). The use of a hydrophobic linker, bound to a hydrophilic molecule such as a nucleic acid would inherently result in a surface where there was some level of surface tension between the nucleic acid spots due to the hydrophobicity of the intervening linker, even if the amount is not as large as that of a more lipophilic mask, thereby inherently meeting the claimed limitations and the surface tension will be necessarily be greater relative to the support surface itself.

Pirrung teaches a support which has 100 um by 100 um elements to yield 400 um diameter elements (see column 27, lines 40-49) with more than 10 elements per square centimeter (see column 27, lines 40-49 and figure 13B and 13C).

Pirrung teaches that the functionalized region may bind either proteins or nucleic acids (see column 6, lines 1-8) via a covalent interaction (see column 27, lines 55-65).

Pirrung expressly teaches the use of noncovalent interactions as well (see column 6, lines 45-47).

### ***Double Patenting***

5. Claims 18-27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No.

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5,985,551. Although the conflicting claims are not identical, they are not patentably distinct from each other because

Claims 1-4 of U.S. Patent No. 5,985,551 teach an array plate comprising a support surface comprising a covalently linked layer of inert siloxane, wherein said covalently linked layer defines an array of  $10$  to  $10^{.4}$  sites per  $\text{cm}^{.2}$ , which do not have said covalently linked layer, and which are about 50-2000 microns in diameter, and wherein chemical reactant solutions localize to said sites via surface tension

Further wherein said siloxane may be tridecafluoro-1,1,2,2-tetrahydrooctyl siloxane and wherein said sites are functionalized to bind or covalently link a nucleic acid and wherein said sites comprise siloxane compounds selected from the group consisting of hydroxyalkyl siloxane, dihydroxyalkyl siloxanes, and aminoalkyl siloxanes.

These claims represent a species of the current claims which anticipates the more generic claims currently pending.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

***Response to Arguments***

7. Applicant's arguments filed May 16, 2003 have been fully considered but they are not persuasive.

Applicant argues that the rejection lacks basis as to why the arrays of Fodor or Pirrung inherently comprise surface tension. This argument is not persuasive because EVERY liquid surface inherently has some level of surface tension. The deposited nucleic acids of Fodor and Pirrung form liquid surfaces and must have those properties that every surface would have. These deposited nucleic acids must have frictional coefficients, they must follow the laws of thermodynamics and the deposited nucleic acids must have some level of surface tension. The claim does not require any particular level of surface tension, so any level at all will meet the claimed invention. For example, in figure 4 of Fodor, the array is placed in a solution phase. At the first moment when the solution contacts the array, there clearly must be some level of surface tension. Therefore, the rejection is maintained.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any


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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Fredman whose telephone number is 703-308-6568. The examiner can normally be reached on 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 703-308-1119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.



Jeffrey Fredman  
Primary Examiner  
Art Unit 1634

July 22, 2003